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SCOLECODONTS FROM WELL CORES  
OF THE MAQUOKETA SHALE, UPPER ORDOVICIAN,  
ELLSWORTH COUNTY, KANSAS

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Dr. William K. Pooser, Research Geologist of the Cities Service Oil Company, has graciously presented to the Carnegie Museum a suite of 18 scolecodonts for study. The specimens, from Ellsworth County, Kansas, were taken from well cores between 3336 and 3413 feet below the surface and are thought to be from the Maquoketa shale, late Ordovician. Scolecodonts from Ordovician rocks in a number of areas have been studied by various workers: Hinde (1879), Stauffer (1933), Eller (1942, 1945, 1946), Kozlowski (1956), and Zofia Kielan-Jaworowska (1961, 1962). No single species described in this paper can be said to be closely related to any other described Ordovician forms. All the specimens are very small, being less than a half-millimeter in size. If the surface outcrops, together with cores from a number of wells of the Maquoketa formation were examined, it is likely that scolecodonts would be found in relative abundance. Detailed studies at numerous localities and stratigraphic horizons could be beneficial to biostratigraphers.

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*Genus Lumbriconereites* Ehlers, 1868

**Lumbriconereites inconditus**, new species

Maxilla I, figures 1-3

Irregular lateral margins are distinctive characteristics of the narrow and elongate jaw. A series of twelve conical, sharp-pointed to rounded, medium-sized, backward-directed denticles extends along



the inner margin nearly to the posterior end. The first denticle, or fang, is long, sharp-pointed, and somewhat hooked. Most of the denticles are fairly uniform in size and all are oblique to the under side of the jaw. Part of the posterior end of the jaw is missing but it probably tapered to a small rounded extremity. The margins of the jaw are irregularly curved and form small flange-like projections. About one-half of the upper surface is occupied by a deep fossa, which extends from about the mid-area of the jaw to the posterior end. The margins of the fossa are slightly thickened and rounded. Both the upper and under sides of the jaw are irregularly convex and concave.

A number of species of *Lumbriconereites* are similar in a general way to *Lumbriconereites inconditus*. They differ mostly in the outline of the margins and the size of the fossa.

### ***Lumbriconereites dissimilaris*, new species**

#### Maxilla I, figures 4, 5

The jaw is elongate and narrow. On first examination the narrowness of the specimen suggested that part of the jaw along the outer margin is missing. Since the margin of the fossa seems to be complete and regular, the impression is probably due to the irregular curving of the margin at various places. Along the inner margin a series of eighteen large, blunt or rounded denticles extends the full length of the jaw. They are oblique to the surface of the jaw. The fang, or first denticle, is large, narrow, and sharp-pointed, and is directed forward. The second denticle is blunt and is also directed toward the anterior. The remaining denticles are more or less perpendicular to the inner margin and decrease in size uniformly to small ones at the posterior end. A large rounded flange at about the middle of the jaw curves in slightly to form a shallow bight. A small, shallow fossa occupies about one-third of the flange and extends to the narrow, rounded, posterior extremity. The margins of the fossa, especially the outer one, are thickened and rounded. The surfaces of the jaw are convex except for a narrow area on the under side of the jaw at the posterior half, which is concave.

Except for the narrowness of the jaw at the anterior half, and the small fossa, *Lumbriconereites dissimilaris* is typical of the genus and can be compared to a number of forms in a general way. It is, however, dissimilar to any other species.

**Lumbriconereites machinosus**, new species

Maxilla I, figures 6, 7

When viewed from the under side the surface of the jaw is irregularly concave and convex. Along the inner margin a series of eleven conical-to-rounded denticles extends for more than three quarters of the length of the jaw. The first denticle or fang is large, long, and points nearly in a forward direction. The second tooth is similar but smaller and is separated from the first and third denticles by a space. Beginning with the third, the denticles are large, wide, rounded, short, and very close together. The teeth increase in size to about the middle of the jaw where they then decrease gradually in size toward the posterior. The denticles are slightly oblique to the under surface of the jaw. From the fang the irregularly curved outer margin forms a small shank and a bight and then recurves to a narrow, knob-like posterior extremity. A large deep fossa occupies more than one-half of the upper surface of the jaw. The margins of the fossa are well-rounded and thickened. A narrow elongate flange is present on the inner margin of the jaw. The surface of the jaw anterior to the fossa is convex.

The right jaw of *Lumbriconereites machinosus* is similar to those in a number of specimens of the genus. These jaws differ mostly in the type, arrangement, and obliqueness of the denticles. There is a slight resemblance between *Lumbriconereites machinosus* and *Lumbriconereites perpentatus* Hinde (1822: fig. 68). Except for the denticles and their curved arrangement and a wider flange, *Lumbriconereites proclivis* Eller (1942) is like *Lumbriconereites machinosus*. Two forms, *Lumbriconereites tuberosus* Eller (1945) and *Lumbriconereites jenningsi* Eller (1945), are like *Lumbriconereites machinosus* in certain ways but differ in the type and arrangement of the denticles and in other details of structure. *Lumbriconereites celsus* Eller (1961) is similar, generally, to *Lumbriconereites machinosus*, especially in the form and position of the first and second denticles. They are unlike in the position of the shank and in other characteristics.

**Lumbriconereites attactus**, new species

Maxilla I, figures 8, 9

The jaw is elongate and rounded at the anterior and posterior ends. A series of 17 long, narrow, conical, closely arranged, sharp-pointed,

backward-directed denticles extends nearly the full length of the jaw. The first denticle is larger than the remaining teeth, which decrease in size only slightly to the posterior. A large, curved shank extends nearly the full length of the jaw. The margin of the shank may be broken. On the upper surface a large, shallow fossa occupies about three-quarters of the jaw. The margins of the fossa are slightly thickened and rounded. The upper surface of the jaw is convex and the under surface is nearly flat.

This form does not compare very closely with other species of the genus. The left jaw of *Lumbriconereites hibbaridi* Eller (1940) resembles *Lumbriconereites attactus* in a general way. The two species differ mostly in the shape and arrangement of the denticles and the shape of the shank. Hinde (1879) described a form as *Eunicites clintonensis* that is probably a side-view of a *Lumbriconereites* species. It is similar to the side-view of *Lumbriconereites attactus* but differs in the width of the posterior end and the length of the denticles.

#### Genus *Paleoenonites* Eller, 1942

#### ***Paleoenonites discrepans*, new species**

#### Maxilla II, figure 10

This form varies considerably from other species of the genus because of the position of the shank. It begins at the mid-area of the jaw instead of in the anterior part. The jaw is elongate with an acute posterior extremity. Along the inner margin a series of eight conical, sharp-pointed, backward-directed denticles extends for about two-thirds the length of the jaw. The first denticle or fang is large, pointed, and separated from the second tooth by a space. The remaining denticles are nearly uniform in size and are slightly oblique to the under surface of the jaw. A shallow-to-deep irregular fossa occupies more than half the upper surface of the jaw. The margins of the fossa are thickened and rounded. The outer margin curves gently from the anterior and then curves in to form a large, angular shank that curves slightly to the posterior end. The upper surface of the jaw is irregularly concave. The under surface is irregularly concave and convex.

*Paleoenonites discrepans* has characteristics found in a number of species of the genus but does not compare very closely with any of them in the position of the shank and fossa and the absence of denticles at the posterior end. The form might be grouped with *Paleoen-*



*onites acutus* Eller (1945), *Paleoenonites circumscriptus* Eller (1945), *Paleoenonites armigerus* Eller (1955), and *Paleoenonites davisae* Eller (1945).

### ***Paleoenonites infundibulus*, new species**

Maxilla II, figure 25

In outline, the jaw is subtriangular, wide anteriorly, and the lateral margins taper to an acute posterior extremity. Along the inner margin a series of fourteen sharp-pointed, conical, backward-directed denticles extends the full length of the jaw. The first denticle, or fang, is large, forward-directed, and only slightly hooked. From the fang the denticles increase in size very slightly to the mid-area and then decrease in size gradually to the posterior end. The anterior margin is fairly straight, but at the outer end curves abruptly with the curved outer margin to form a small, round, shank-like projection. The surface of the jaw is irregularly convex and concave. Since matrix covers the upper side of the jaw the fossa cannot be seen and described.

A number of species of *Paleoenonites* resemble *Paleoenonites infundibulus*. If the fossa of the specimen could be observed, this form might prove to be the same as *Paleoenonites acutus* Eller (1945). The denticles and the shank, or area at the anterior end, are slightly different in the specimens of the two species. *Paleoenonites accuratus* Eller (1942) resembles *Paleoenonites infundibulus* except at the posterior end. With the exception of the number of denticles and the contour of the outer margin, *Paleoenonites latissimus* Eller (1942) is similar to *Paleoenonites infundibulus*. Two species, *Paleoenonites kopfi* Eller (1940) and *Paleoenonites fornicatus* Eller (1940), are comparable to *Paleoenonites infundibulus*. A form, *Oenonites radula* Hinde (1882), from Gotland, is similar to *Paleoenonites infundibulus*, especially in the shape of the fang and denticles and their arrangement. Eller (1964) described a form, *Paleoenonites lacinatus*, that resembles *Paleoenonites infundibulus*, but only in a general way.

Genus *Ildraites* Eller, 1936

### ***Ildraites infractus*, new species**

Maxilla I, figures 11, 12

Part of the posterior end of this specimen is missing. The jaw is elongate and subtriangular in shape. Along the nearly straight inner

margin a series of eleven conical, blunt and sharp-pointed, backward-directed denticles extends the full length of the jaw. In the complete specimen there might have been two or three more teeth in the series. The first denticle is fairly heavy, pointed, slightly curved, and directed forward. The second denticle is blunt and thickened. All the teeth are slightly oblique to the under-surface of the jaw. The outer margin curves in from the rounded anterior end and the fang to form a large, triangular-shaped shank with a fairly acute point. A rather shallow bight is formed by the shank and the nearly straight outer margin of the posterior area of the jaw. On the upper side of the jaw a large, fairly deep fossa occupies about one-half of the surface. The margins of the fossa seem to be slightly thickened and rounded. The concavity and convexity of the under-surface of the jaw are barely perceptible. The upper side is definitely convex.

*Ildraites infractus* cannot be compared very closely with most forms described under this genus. The narrowness of the jaw, the curve of the outer margin, the forward-directed fang, and the shape and size of the second denticle make the form unlike other species. Stauffer (1933) described *Eunicites granus*, which, except for the two small denticles following the fang, appears to be similar to *Ildraites infractus*. *Ildraites bowenensis* Eller (1941) closely resembles *Ildraites infractus*. They differ in the position of the first denticle and the size and shape of the second tooth. Loranger (1963) figured *Ildraites bowenensis* from Alberta. It may be compared to *Ildraites infractus*. A form, *Ildraites eminus* Eller (1963), resembles *Ildraites infractus* in a general way. The differences usually occur in the anterior part. The fang and the arrangement of the anterior denticles are dissimilar.

### ***Ildraites pooseri*, new species**

Maxilla I, figures 13, 14

This form has a very small fang, or first denticle, and there is not much space between it and the second denticle. The jaw is wide anteriorly but decreases abruptly at about the midpoint to form a narrow posterior area and lateral margins that are nearly parallel. On the gently curved inner margin a series of eleven, rather large, blunt, conical, backward-directed denticles extends nearly to the truncate posterior extremity. The fang is narrow, well hooked, and slightly oblique to the under surface of the jaw. The first four denticles follow-

ing the fang are not as blunt as the remaining ones, and not as oblique to the surface of the jaw. From the first denticle the outer margin curves gently and then curves in slightly to form a heavy truncate shank. A wide, shallow bight emphasizes the shortness of the shank. The fossa is narrow and irregular in shape and extends from the anterior end of the shank to the posterior extremity of the jaw. In the area of the shank the fossa is wide, then narrows abruptly for most of the length of the jaw and again becomes wide at the posterior. The margins of the fossa are thickened and rounded. The upper surface is irregularly convex. The under surface is mostly concave except for narrow ridges extending lengthwise to the jaw.

Stauffer (1939) described a form, *Arabellites dauphinensis*, that, with the exception of the shank, is slightly similar to *Ildraites pooseri* in general shape. *Ildraites howelli* Eller (1941; Sylvester, 1959) resembles *Ildraites pooseri* in a number of characteristics but differs in the shape of the shank and fossa. *Ildraites pooseri* is like *Ildraites bowenensis* Eller (1941; Loranger, 1963) in a number of ways. The two differ in the shape of the fossa and in the space between the first and second denticles. There is a slight resemblance between *Ildraites eminulus* Eller (1963) and *Ildraites pooseri*.

### ***Ildraites cyclus*, new species**

#### Maxilla I, figure 22

The jaw is elongate and narrow, especially in the posterior area. Along the nearly straight inner margin a series of fourteen rounded, closely arranged denticles extends for about three-fourths of the length of the jaw. The first denticle, or fang, is large and is followed by three small teeth of uniform size. The fifth denticle is larger, and the teeth increase in size to about the mid-area, where they begin to decrease uniformly in size to the posterior. The denticles are slightly oblique to the under side of the jaw. From the fang the outer margin is rounded and then incurved to form a large, semi-rounded shank. The posterior margin of the shank is nearly straight and forms an angular bight with the straight outer margin. A deep fossa occupies the area of the shank and the narrow posterior end. The margins of the fossa are slightly thickened and rounded. The under surface of the jaw is mostly convex except at the anterior end.

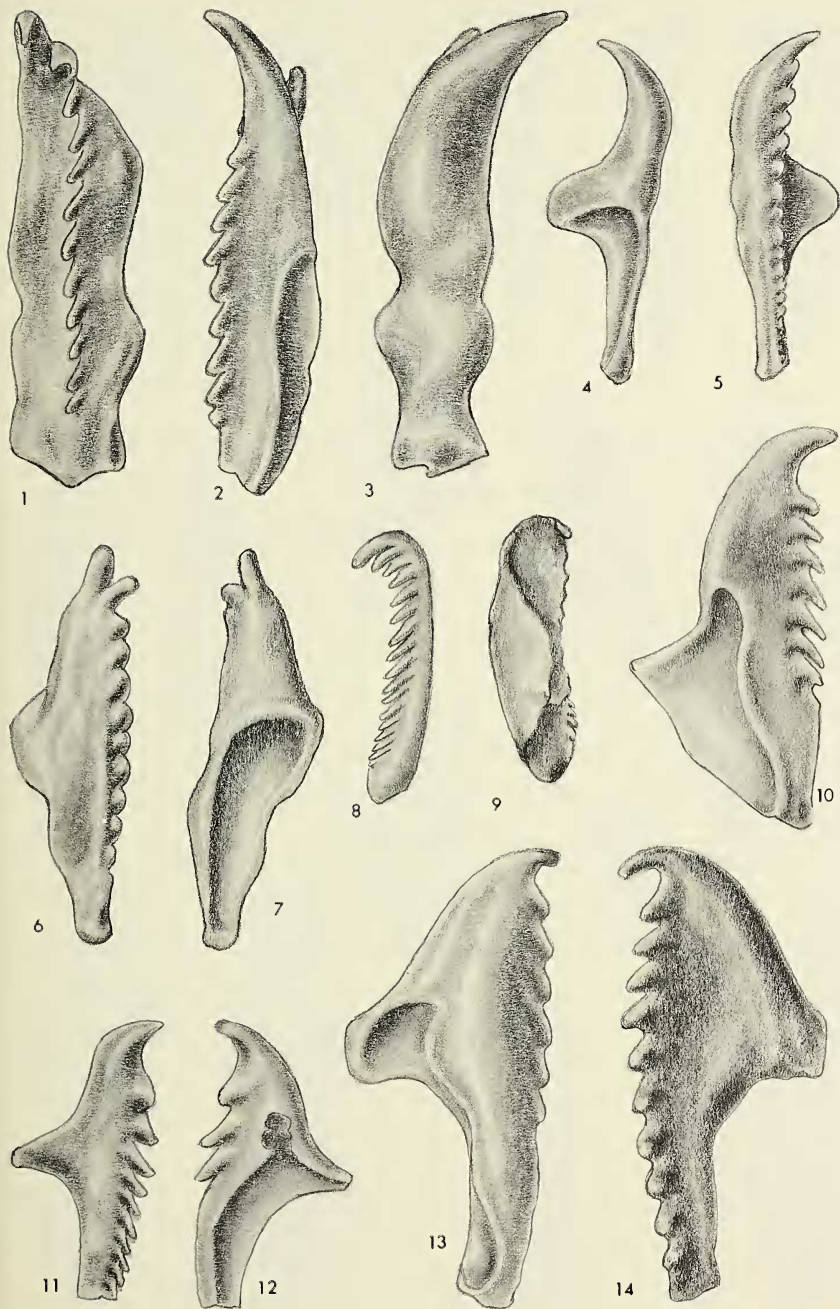
A form, *Ildraites exquisites* Eller (1942), is similar to *Ildraites cyclus* except for the size and shape of the shank and the type and

## EXPLANATION OF PLATES

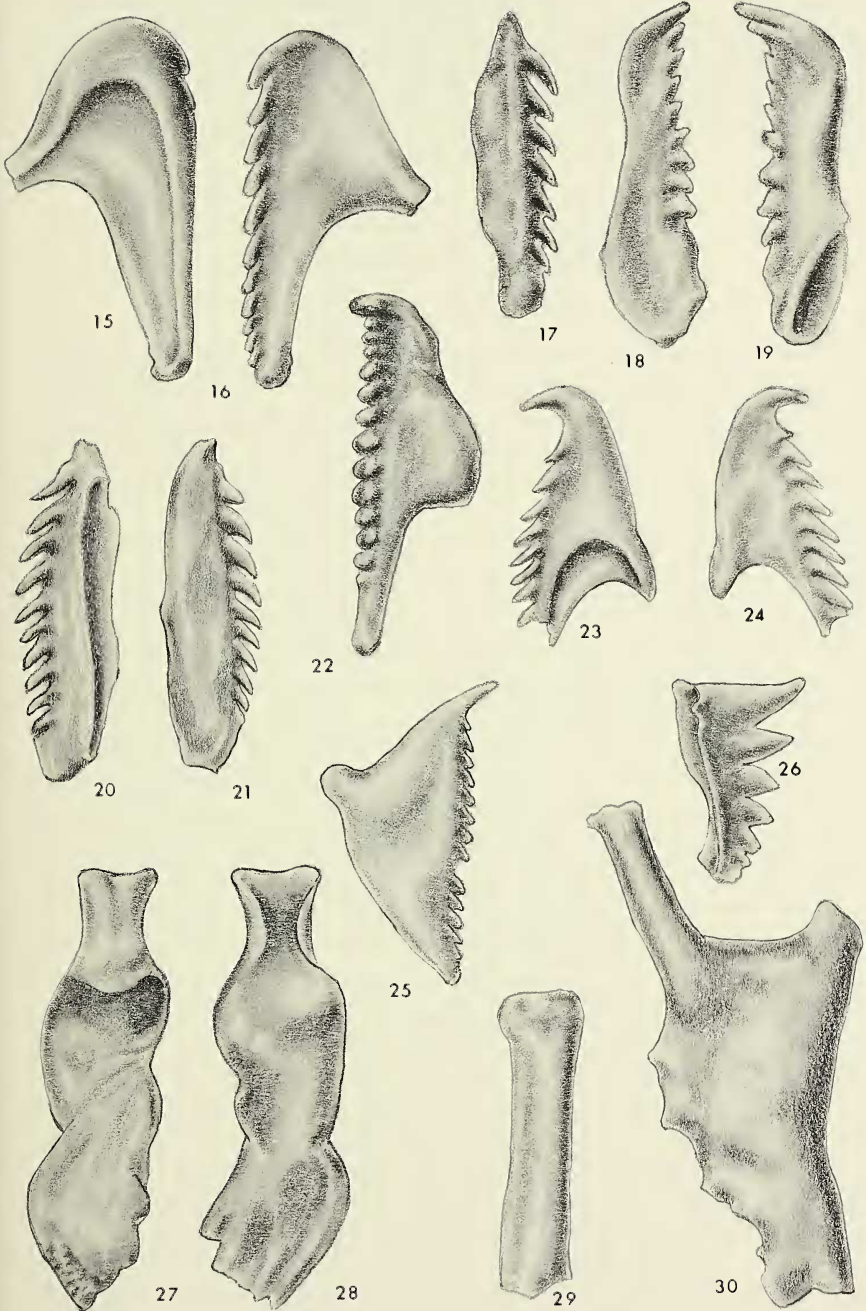
Figures magnified about 50 times. Numbers in parentheses are Carnegie Museum catalogue designations of the respective type specimens.

- Figs. 1, 2, 3. *Lumbriconereites inconditus*, new species, Maxilla I (30299). Subsurface level, 3336 ft.
- Figs. 4, 5. *Lumbriconereites dissimilaris*, new species, Maxilla I (30300). Subsurface level, 3410 ft.
- Figs. 6, 7. *Lumbriconereites machinosus*, new species, Maxilla I (30301): Subsurface level, 3340 ft.
- Figs. 8, 9. *Lumbriconereites attactus*, new species, Maxilla I (30302). Subsurface level, 3414 ft.
- Fig. 10. *Paleoenonites discrepans*, new species, Maxilla II (30303). Subsurface level, 3414 ft.
- Figs. 11, 12. *Ildraites infractus*, new species, Maxilla I (30305). Subsurface level, 3410 ft.
- Figs. 13, 14. *Ildraites pooseri*, new species, Maxilla I (30306). Subsurface level, 3414 ft.





- Figs. 15, 16. *Leodicites interstrictus*, new species, Maxilla II (30309). Subsurface level, 3414 ft.
- Fig. 17. *Staurocephalites apicatus*, new species, Maxilla II (30310). Subsurface level, 3412 ft.
- Figs. 18, 19. *Nereidavus novenus*, new species, Maxilla I (30313). Subsurface level, 3425 ft.
- Figs. 20, 21. *Staurocephalites ellsworthensis*, new species, Maxilla II (30311). Subsurface level, 3412 ft.
- Fig. 22. *Ildraites cyclus*, new species, Maxilla I (30307). Subsurface level, 3410 ft.
- Figs. 23, 24. *Ildraites limatus*, new species, Maxilla I (30308). Subsurface level 3412 ft.
- Fig. 25. *Paleoenonites infundibulus*, new species, Maxilla II (30304). Subsurface level, 3340 ft.
- Fig. 26. *Staurocephalites invisitatus*, new species, Maxilla II (30312). Subsurface level, 3340 ft.
- Figs. 27, 28. *Marphysaites multiformis*, new species, Carrier? (30314). Subsurface level, 3340 ft.
- Fig. 29. *Marphysaites claviger*, new species, Carrier (30315). Subsurface level, 3410 ft.
- Fig. 30. *Siluropelta crassecaulis*, new species, Mandible (30316). Subsurface level, 3412 ft.



arrangement of the denticles. *Ildraites fritzae* Eller (1942) has the narrow, elongate, posterior end, like *Ildraites cyclus*. The shape of the bight and the type and arrangement of the teeth are different, however.

### ***Ildraites limatus*, new species**

Maxilla I, figures 23, 24

In shape the jaw is elongate and subtriangular. Along the slightly curved inner margin a series of nine, long, conical, sharp-pointed, backward-directed denticles extends the length of the jaw. The posterior end of the jaw is missing and it is possible that there may have been two or more additional denticles in the series. The fang, or first denticle, is large, well hooked, and slightly oblique to the under surface of the jaw. When viewed from the under side the impression is that there is not as much space between the first and second denticles as there actually is. The second denticle is small and is followed by teeth that increase in size to about the middle of the jaw and then decrease slightly in size to the posterior. The outer margin curves gently from the fang and then curves in slightly to form a medium-sized, fairly acute shank. A shallow, crescent-shaped bight on the outer margin forms the curved posterior margin. A rather small fossa occupies the posterior part of the jaw. The margins of the fossa are slightly thickened and rounded. The under surface of the jaw is irregularly convex and concave, and the upper side is mostly convex.

A number of forms of the genus *Ildraites* may be compared with *Ildraites limatus* in certain details, but none of the forms resembles it closely. *Lumbriconereites expansus* Stauffer (1939) and *Eunicites grandis* Stauffer (1939) have similar characteristics. They differ mostly in the type and arrangement of the denticles. *Ildraites bowenensis* Eller (1941; Loranger, 1963), resembles *Ildraites limatus* closely except for the width at the anterior end and the size of the fossa. Except for the denticles and the shape of the anterior area, *Ildraites howelli* Eller (1941); Sylvester, 1959), is similar to *Ildraites limatus* in a general way. There is a slight resemblance between *Ildraites patulus* Eller (1942) and *Ildraites limatus*. The narrowness of the anterior area and the type of denticles of *Ildraites rarus* Eller (1945) and *Ildraites limatus* are comparable. *Ildraites appressus* Eller (1955) is like *Ildraites limatus* except for the number and arrangement of the



denticles. *Ildraites eminulus* Eller (1963) and *Ildraites limatus* are fairly similar except for the space between the first and second denticles and the width of the anterior and posterior ends. *Ildraites unexpectedus* Eller (1964) has characteristics akin to *Ildraites limatus*. They differ mostly in the size of the fossa.

Genus *Leodicites* Eller, 1940

***Leodicites interstrictus*, new species**

Maxilla II, figures 15, 16

A small part of the shank, unfortunately, is missing from this form. The jaw is elongate and subtriangular in outline. Along the nearly straight inner margin a series of eleven blunt, conical denticles extends nearly to the narrow, rounded, posterior extremity. The denticles are uniform in shape and decrease gradually in size to the posterior. All the teeth are directed backwards and appear to overlap each other. The anterior margin is broadly rounded from the first denticle and then incurved slightly to form a shank that is probably nearly straight. A deep crescent-shaped bight on the outer margin emphasizes the length of the shank. A large fossa is present on the upper side of the jaw. The margins of the fossa are slightly thickened and rounded. In the center of the fossa a convex ridge extends from the posterior to about the center of the jaw. This convexity is reflected by a concave area on the under side of the jaw.

Although *Leodicites interstrictus* is typical of the genus it is not very similar to other forms. There is a slight resemblance to *Leodicites variedentatus* Eller (1940), *Leodicites reimanni* Eller (1941), and *Leodicites altilis* Eller (1955). The form differs mostly in details of its general shape and in the type and arrangement of the denticles.

Genus *Staurocephalites* Hinde, 1879

***Staurocephalites apicatus*, new species**

Maxilla II, figure 17

The jaw is narrow and elongate with a pointed anterior end and a rounded posterior extremity. A nearly straight inner margin bears a series of eight large, conical sharp-pointed, backward-directed denticles, which extends to the posterior. The first denticle is slightly larger than the remaining teeth, which decrease in size uniformly. A

large fossa extends from the first denticle to the posterior area. The inner margin of the fossa is thickened; the outer margin is thin. The under surface of the jaw is irregularly concave and convex. A narrow ridge extends the full length of the jaw on the under side.

*Staurocephalites dentatus* Stauffer (1933), *Staurocephalites heppenstallae* Eller (1945), and *Staurocephalites mccallae* Eller (1945) resemble *Staurocephalites apicatus* in a general way. They differ mostly in the number of denticles and the shape of the anterior end.

### **Staurocephalites ellsworthensis**, new species

Maxilla II, figures 20, 21

In outline the jaw is elongate and in shape semioval, with the broader end at the posterior. On the slightly curved inner margin a series of ten large, conical, sharp-pointed, backward-directed denticles extends nearly the full length of the jaw. The first denticle is slightly larger than the remaining teeth, which decrease in size uniformly to the posterior. A narrow fossa extends from opposite the first denticle nearly to the posterior end of the jaw. The inner, or upper, margin of the fossa is thickened and rounded; the outer margin is thin. The anterior end of the jaw is missing but it probably terminated in an acute ending. The posterior end of the jaw is broad and truncate. The under side of the jaw is irregularly convex and concave. The upper surface is mostly convex.

There is a general resemblance of *Staurocephalites dentatus* (Stauffer (1933), *Staurocephalites mccallae* Eller (1945), and *Staurocephalites heppenstallae* Eller (1945) to *Staurocephalites ellsworthensis*. They differ mostly in the anterior area and in the number and type of denticles.

### **Staurocephalites invisitatus**, new species

Maxilla II or III, figure 26

There is a section missing from the posterior end of the jaw, but it is probably very small since the last denticle is minute in size. The jaw is small and subtriangular in shape. Along the inner margin a series of seven, very large to very small, conical, sharp-pointed denticles extends the full length of the jaw. The first denticle points slightly forward and the remaining teeth are nearly perpendicular to

the margin. A narrow, deep fossa occupies the full length of the jaw. At the anterior end of the fossa are two small spurs. The margins of the fossa are slightly thickened and rounded. The upper surface of the jaw is mostly concave and the under surface is convex.

*Staurocephalites invisitatus* is unlike most species of the genus. Except for the length and size of the denticles, *Staurocephalites kayi* Eller (1945) slightly resembles *Staurocephalites invisitatus*.

Genus *Nereidavus* Grinnell, 1877

*Nereidavus novenus*, new species

Maxilla I, figures 18, 19

When viewed from different sides, the outline of the jaw varies in shape. It is generally elongate and narrow. On the inner margin a series of nine conical denticles extends for nearly three-quarters of the length of the jaw. The fang is long, narrow, and is directed forward. It is followed by a smaller, similar tooth that is in close contact with the fang. The next four denticles are fairly uniform in size and point anteriorly. The remaining three teeth are larger and directed backward. A deep, oval fossa occupies about two-fifths of the posterior area of the jaw. The margins of the fossa are thickened and rounded. The upper side of the jaw is convex and the lower side is irregularly concave and convex.

Usually the fossa and the posterior end of the right jaw of *Nereidavus* species are irregular in shape and contour. Flanges are usually present. This form lacks the usual central ridge in the fossa which is reflected on the under side by a depressed area. The form and arrangement of the denticles are similar in a number of *Nereidavus* species. The right jaw of *Nereidavus invisibilis* Eller (1940) is similar to that of *Nereidavus novenus* in shape but differs in the denticles and in the complexity of the fossa. *Nereidavus hamulus* Eller (1941) has an uncomplicated fossa like that of *Nereidavus novenus*. All four species are unlike in the shape of the posterior end, and in number and arrangement of the denticles.

Genus *Marphysaites* Eller, 1945

?*Marphysaites multiformis*, new species

Carrier? figures 27, 28

It is not certain whether this specimen is a carrier or actually part of a jaw apparatus. Although there is a general resemblance of the

form to carriers of modern and fossil species no illustration has been found in which the carriers were structurally as complex as this one. Unlike this specimen, the illustrations show a nearly straight inner margin in articulation with the margin of the other carrier. It is difficult to know which is the upper or under surface of the specimen. In shape the form is elongate, with irregularly curved margins. A portion of the posterior end is probably missing. The anterior end is truncate and slightly incurved, appearing to provide a natural place for articulation with a maxilla. If figure 28 is the upper side, the lateral rounded margins are bent inward and form a tube-like area. The purpose of this hollow may be to accommodate a muscle or a part of the maxilla. On the opposite side is a deep fossa-like area with a curved lip-like anterior margin. The surface of the specimen is irregularly convex and concave with round and elongate depressions and ridges.

#### **Marphysaites claviger, new species**

Carrier, figure 29

In outline the carrier is elongate and narrow with parallel margins. The anterior end is truncate with a slightly incurved margin. The posterior end may be broken. A ridge, which is forked near the anterior, extends the full length of the specimen to the posterior where it curves to the left. Adjacent to the ridge on the left side is a long depressed area. At the anterior end of the form are three depressions.

*Marphysaites claviger* is unlike other forms of the genus. It differs mostly in the sculpture of the surface and in the shape of the anterior end. Eller (1945) described *Marphysaites aptus* as a mandible based on the resemblance to species of the modern genus *Marphysa*. In 1964, however, Eller described two species, *Marphysaites junctus* and *Marphysaites gomphoides*, as carriers since the anterior margin of these species appeared to be the probable articulating surface with the posterior end of a maxilla I. The carrier *Marphysaites claviger* resembles some of the carriers of the modern genus *Leodice* Savigny.

Genus *Siluropelta* Eisenack, 1939

#### ***Siluropelta crassecaulis*, new species**

Mandible, figure 30

In shape the mandible is wide with an irregular (probably broken) outer and posterior margin. The inner margin is slightly incurved instead of being nearly straight as in most species. In the articulation



there is probably an overlapping with an adjacent mandible. The anterior margin curves in slightly and at the outer margin forms a long, thick, rounded shaft or spine that terminates in a knob-like ending. A small projection is present at the inner margin of the anterior end. The surface of the mandible is mostly concave with some ridges and raised areas.

*Siluropelta crassecaulis* does not resemble other species of the genus very closely.

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